Ex 1. Pg 6

Q1 (a) C (b) C (c) P (d) C (e) C
(f) C (g) C (h) P (i) C (j) P

(e)
2 | 90
5 | 45
3 | 9
3 | 3
1

$90 = 2 \times 3^2 \times 5$.

Q2 47, 91

Q3, N° ends in even N°

Q4, N° digits sum to 30 ∴ is div by 3

Q5, N° is div by 2
N° is div by 5

Q6 (a) $\sqrt{799} = 28.26\ldots$
799 ÷ 3 ✗
799 ÷ 7 ✗
799 ÷ 11 ✗
799 ÷ 13 ✗
799 ÷ 17 ✓ = 47 ∴ Composite

(b) $\sqrt{797} = 28.23\ldots$

797 ÷ 3 ✗
797 ÷ 7 ✗
797 ÷ 11 ✗
797 ÷ 13 ✗
797 ÷ 17 ✓
797 ÷ 19 ✗
797 ÷ 23 ✗ ∴ Prime

Q7 $P + (P+2) = 36$

$2P + 2 = 36$

$2P = 34$

$P = 17$

17 and 19.

Q8 $3 = 2 + 1$ but $1 \neq$ Prime

Q9 (a) 2, 4, 6, 8, 10, 12, 14, 16, 18, 20,

(b) $2n$

(c) Yes

(d) $2n \times 2k = 4nk$ which is div by 2

$= 2(2nk)$

Q10 (a) 1, 3, 5, 7, 9, 11, 13, 15, 17, 19,

(b) $2n - 1$

(c) Yes

(d) $(2n-1)(2k-1) = 4nk - 2n - 2k + 1$ is not div by 2

Q11 (a) $P = 34537$ $q = 99991$

$N = pq = 3453389167$

(b) $N = 3763913$ $P = 2111 \Rightarrow q = \frac{3763913}{2111} = 1783$

Q12 $M = 2^P - 1$

$P = 2 \Rightarrow 2^2 - 1 = 3$

$P = 3 \Rightarrow 2^3 - 1 = 7$

$P = 5 \Rightarrow 2^5 - 1 = 31$

$P = 7 \Rightarrow 2^7 - 1 = 127$

$P = 11 \Rightarrow 2^{11} - 1 = 2047$

$P = 13 \Rightarrow 2^{13} - 1 = 8191$

$P = 17 \Rightarrow 2^{17} - 1 = 131071$

$P = 19 \Rightarrow 2^{19} - 1 = 524287$

Q13 13 & 17 are Primes

Predictors hatching in yrs 2, 4, 6, 8, 10, 12, will not meet.